Name of Organization: Lake Superior State University

Type of Organization: College or University

Contact Information: Dr. Gregory Zimmerman

Dept of Biology

1000 College Ave

Sault Sainte Marie MI 49783

Phone: (906) 635 - 2470 **Extension:**

Fax: (906) 635 - 2111

E-Mail: gzimmerman@gw.lssu.edu

Project Title: Restoring and preserving habitat from exotic pest plants

Project Category: Exotic Species

Rank by Organization (if applicable): 0

Total Funding Requested ($): 20,550 **Project Duration:** 1 Years

Abstract:

This project addresses invasions by two exotic plant species: purple loosestrife and spotted knapweed. Leveraging on previous work by the PIs, we intend to develop a unique effort to prevent invasion of purple loosestrife in two high quality habitats in the St Marys River and to investigate the invasion of spotted knapweed into habitat of the endangered piping plover. In the spotted knapweed study, we will document rates of spread, competition between spotted knapweed and native plants and conduct pilot studies for effective control. After determining the most effective control measure, we will form a citizen's group for conducting the control measures, drawing from experience with the purple loosestrife control group. Results from these trials are directly applicable across the basin.

Geographic Areas Affected by the Project

States:

- ☐ Illinois
- ☐ Indiana
- ☒ Michigan
- ☐ Minnesota
- ☐ New York
- ☐ Pennsylvania
- ☐ Wisconsin
- ☐ Ohio

Lakes:

- ☐ Superior
- ☒ Huron
- ☒ Michigan
- ☐ Erie
- ☐ Ontario
- ☐ All Lakes

Geographic Initiatives:

☐ Greater Chicago ☐ NE Ohio ☐ NW Indiana ☐ SE Michigan ☐ Lake St. Clair

Primary Affected Area of Concern: St. Marys River, MI

Other Affected Areas of Concern:

For Habitat Projects Only:

Primary Affected Biodiversity Investment Area: Not Applicable

Other Affected Biodiversity Investment Areas:

Problem Statement:

Two exotic pest plants -- purple loosestrife and spotted knapweed -- are invading shoreline habitats in the Great Lakes. Purple loosestrife invades wetland habitats, leaving them less suitable for wildlife. Spotted knapweed invades dry sites including roadsides and beaches. One such area is the beaches of Waugashaunce Point, a nesting area for the endangered piping plover.

We are presently investigating habitat restoration of an area infested with purple loosestrife (Potagonissing River, Drummond Island, Michigan). Using greenhouse and field plots, we are examining competitive interactions between purple loosestrife and native plants and how the native plants respond to biocontrol of purple loosestrife. One of the PIs is completing a project on plant succession on piping plover habitat.

We propose a two-part project to leverage from this previous work. The first involves prevention of a purple loosestrife infestation in high quality habitat along the St. Marys River of Michigan. Purple loosestrife has become established in spots along the river but to date two especially high quality habitats are free of purple loosestrife: 9 Mile Marsh and Munuscong Bay. Since loosestrife is in the area, it may be just a matter of time before it gains a foothold in these habitats. We propose to form a citizen's group to monitor the sites, looking for any initial signs of an invasion and stopping any such invasion early, while it is still manageable. Too often, action is not taken until an invasion is beyond the manageable stage. We will work with existing groups to form this coalition.

The second part of our proposal deals with halting the invasion of spotted knapweed in piping plover habitat. Plovers prefer unvegetated beaches but a beach currently used by piping plovers is becoming overrun with the aggressive knapweed. Similar to a present study we are conducting on purple loosestrife, we will investigate the rate of invasion, the competition between spotted knapweed and native plants and the response of the native plants to removal of knapweed. We will also pilot control measures including hand pulling and cutting. We will investigate the potential for burning, for herbicide use and for biocontrol, although densities may not be high enough to support a fire, herbicides may not be appropriate that close to the open water and biocontrol agents may not be available for this climate. Upon determination of the most appropriate measure, we will institute a volunteer network to control the spread of spotted knapweed.

Proposed Work Outcome:

Establishment of a volunteer network to 1) monitor the potential invasion of purple loosestrife in two high quality habitats 2) reduce the infestion by spotted knapweed into a piping plover nesting area. In addition, we will provide practical information

regarding interactions between spotted knapweed and native plants and appropriate control measures for spotted knapweed.

Project Milestones:	**Dates:**
Project Start	03/2001
Write SOPs, build St Marys network	03/2001
set up field plots in Waugashaunce	05/2001
Monitor field plots	08/2001
Monitor volunteer efforts, St Marys	08/2001
Further plant studies (greenhouse)	11/2001
Report writing	02/2002
Project End	02/2002

☐ Project Addresses Environmental Justice

If So, Description of How:

☒ Project Addresses Education/Outreach

If So, Description of How:

By incorporating volunteers, we will educate several people about the importance of monitoring for invasive plants and the proper methods for managing invasive plants. The project will also be associated with Lake Superior State University. Students will participate.

Project Budget:

	Federal Share Requested ($)	Applicant's Share ($)
Personnel:	15,000	4,000
Fringe:	1,050	0
Travel:	1,000	0
Equipment:	0	1,000
Supplies:	500	100
Contracts:	0	0
Construction:	0	0
Other:	0	0
Total Direct Costs:	17,550	5,100
Indirect Costs:	3,000	0
Total:	20,550	5,100
Projected Income:	0	0

Funding by Other Organizations (Names, Amounts, Description of Commitments):

Lake Superior State University and Ontario Ministry of Natural Resources will supply research space and field and lab analytic equipment. LSSU and OMNR contribute some staff time as well.

Description of Collaboration/Community Based Support:

We anticipate several community organizations and agencies will participate in the project including Munuscong Watershed Association, Sault Sportsmen, Sault Naturalists, Chippewa Conservation District, Natural Resources Conservation Service, St Marys Binational Public Advisory Council for the St Marys Area of Concern, US Forest Service, Michigan DNR. Lake Superior State University and Ontario Ministry of Natural Resources are partnering on this project with a PI from each organization.